Amendments to the Claims:

1. (Currently Amended). A process for replacing a metal cation, M^1, from a compound of Formula I

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Formula I

wherein:

M^1 represents a metal cation selected from Ca^{+2} and Mg^{+2};

Q represents an integer of from about -5 to about +5;

L represents a charge balancing species;

"n" represents an integer of from 0 to +5;

R^1, R^{1a}, R^2, R^3, R^4, R^{4a}, R^7, and R^8 are independently selected from acyl, acyloxy, optionally substituted alkenyl, optionally substituted alkoxy, optionally substituted alkyl, optionally substituted alkynyl, optionally substituted amino, optionally substituted aryl, optionally substituted aryloxy, carboxyl, (optionally substituted alkoxy)carbonyl, (optionally substituted amino)carbonyl, (optionally substituted alkoxy)carbonyloxy, (optionally substituted amino)carbonyloxy, cyano, optionally substituted cycloalkyl, optionally substituted cycloalkenyl, halogen, optionally substituted heteroaryl, optionally substituted heteroaryloxy, optionally substituted heterocyclyl, optionally substituted heterocyclooxy, hydrogen, hydroxyl, nitro, optionally substituted azo, S-R^{31}, SO-R^{31}, SO2-R^{31}, and the moiety X-Y;

R^6 and R^9 are independently selected from acyl, acyloxy, optionally substituted alkenyl, optionally substituted alkoxy, optionally substituted alkyl, optionally substituted alkynyl, optionally substituted amino, optionally substituted aryl, optionally substituted aryloxy, carboxyl, (optionally substituted alkoxy)carbonyl, (optionally substituted amino)carbonyl, (optionally substituted alkoxy)carbonyloxy, (optionally substituted amino)carbonyloxy, cyano, optionally substituted cycloalkyl, optionally substituted cycloalkenyl, fluoro, chloro, bromo, optionally substituted heteroaryl, optionally substituted heteroaryloxy, optionally substituted heterocyclyl, optionally substituted heterocyclooxy, hydrogen, hydroxyl, nitro, optionally substituted azo, sulfanyl, sulfinyl, sulfonyl, and the moiety X-Y;

X is a covalent bond or a linker;

Y is a catalytic group, a chemotherapeutic agent or a site-directing group; and

R^{31} represents acyl, optionally substituted alkenyl, optionally substituted alky, optionally substituted alkoxy, optionally substituted alkoxycarbonyl, optionally substituted alkynyl, optionally substituted aminocarbonyl, optionally substituted aryl, carboxy, optionally substituted cycloalkyl, optionally substituted heteroaryl, or optionally substituted heterocyclyl;

to form a compound of Formula II with a metal cation M^2

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Formula II

wherein:

M^2 represents a metal cation selected from Tl^{+3}, Ti^{+3}, In^{+3}, Cr^{+2}, Mn^{+2}, Fe^{+2}, Gd^{+3}, Co^{+3}, Ni^{+2}, Zn^{+2}, Yb^{+2}, Cd^{+2}, Nd^{+3}, Sm^{+3}, Eu^{+3}, Tb^{+3}, Dy^{+3}, Y^{+3}, Fe^{+3}, Ga^{+3}, Bi^{+3}, Lu^{+3}, Tc^{+2}, Tc^{+3}, Tc^{+4}, U^{+3}, Np^{+3}, Pu^{+3}, Am^{+3}, Cm^{+3} and Cf^{+3};

Q, L, "n", R^1, R^{1a}, R^2, R^3, R^4, R^{4a}, $\underline{R^6}$, R^7, R^8, and $\underline{R^9}$ are as indicated above;

said process comprising treating, in a suitable medium, a compound of Formula I with a compound of formula A

$$M^2 - Z_{(2\text{-}4)} \text{ ---------- formula A}$$

wherein M^2 is as defined above and Z represents OAc, PO_4, NO_3, OTFA, AcAc, Br, I or Cl, optionally in the presence of a base and at a temperature of from about 25° C to about 100° C, to form a compound of Formula II.

2. (Currently Amended). The process of Claim 1 wherein M^2 represents Tl^{+3}, In^{+3}, Mn^{+2}, Fe^{+2}, Gd^{+3}, Co^{+3}, Dy^{+3}, Y^{+3}, Fe^{+3}, Bi^{+3}, Lu^{+3}, ~~Y^{+3}~~; Tc^{+2}, Tc^{+3} or Tc^{+4}; and

L is selected from OAc, PO_4, NO_3, OTFA, AcAc, Br, I and Cl.

3. (Original). The process of Claim 2 wherein M^2 represents Tl^{+3}, Mn^{+2}, Gd^{+3}, Co^{+3}, In^{+3}, Bi^{+3}, Dy^{+3}, Y^{+3} or Lu^{+3}.

4. (Currently Amended). The process of Claim 3 wherein the suitable medium is selected from EtOH, MeOH, DMF, CH_2Cl_2, $CHCl_3$, THF, IPA, pyridine, 2,6-lutidine, CH_3CN, Et_3N, DMSO, acetyl acetone, water, and mixtures thereof.

5. (Original). The process of Claim 4 wherein the suitable medium is selected from EtOH, MeOH, CH_3CN, or mixtures thereof.

6. (Original). The process of Claim 5 wherein the temperature ranges from about 40° C to about 80° C.

7. (Original). The process of Claim 6 wherein the temperature ranges from about 60° C to about 70° C.

8. (Original). The process of Claim 7 wherein Z in formula A is selected from Cl and OAc.

9. (Currently Amended). The process of Claim 8 wherein the compound of formula A are selected from $InCl_3$, YCl_3, $In(OAc)_3$, $Tl(OAc)_3$, $Gd(OAc)_3$, $Lu(OAc)_3$, and $Mn(OAc)_2$.

10. (Currently Amended). The process of Claim 9 wherein the metal M^2 is selected from Tl^{+3}, Mn^{+2}, Gd^{+3}, In^{+3}, Y^{3+}, and Lu^{+3}.

11. (Original). The process of Claim 9 wherein the optional base is selected from sodium acetate, sodium citrate, pyridine, 2,6-lutidine, triethyl amine, and sodium phosphate.

12. (Original). The process of Claim 11 wherein the compound of Formula I is treated with a compound of formula A in the presence of a base selected from sodium acetate, sodium citrate, triethylamine, and 2,6-lutidine.

13. (Original). The process of Claim 12 wherein the base is selected from sodium acetate, triethylamine, and 2,6-lutidine.

14. (New). The process of Claim 1, wherein the identity of R^1, R^{1a}, R^2, R^3, R^4, R^{4a}, R^6, R^7, R^8, and R^9 in the compound of Formula II is the same as the corresponding group in the compound of Formula I.

15. (New). The process of Claim 14, wherein the identity of Q, L and "n" in the compound of Formula II is different from the corresponding entity in the compound of Formula I.

16. (New). The process of claim 14, wherein the identity of Q and "n" in the compound of Formula II is the same as the corresponding entity in the compound of Formula I.

17. (New). The process of Claim 1, wherein R^7 and R^8 is substituted alkoxy.

18. (New). The process of Claim 17, wherein the substituted alkoxy is a polyalkoxy.

19. (New). The process of Claim 18, wherein the metal M^2 is selected from Tl^{+3}, Mn^{+2}, Gd^{+3}, In^{+3} and Lu^{+3}.

20. (New). The process of Claim 1, wherein the metal M^2 is a single metal isotope.

21. (New). The process of Claim 20, wherein the single metal isotope is a radioisotope.

22. (New). The process of Claim 21, wherein the radioisotope is selected from the group consisting of $^{90}Y^{+3}$, $^{153}Gd^{+3}$, $^{111}In^{+3}$, $^{115}Cd^{+2}$, $^{210}Bi^{+3}$, $^{147}Nd^{+3}$, $^{153}Sm^{+3}$, $^{166}Dy^{+3}$ and $^{177}Lu^{+3}$.

23. (New). A compound having the structure of Formula II prepared as described in Claim 1.

24. (New). The compound of Claim 23, wherein the metal M^2 is a single metal isotope.

25. (New). The compound of Claim 24, wherein the single metal isotope is a radioisotope.

26. (New). The compound of Claim 25, wherein the radioisotope is selected from the group consisting of $^{90}Y^{+3}$, $^{153}Gd^{+3}$, $^{111}In^{+3}$, $^{115}Cd^{+2}$, $^{210}Bi^{+3}$, $^{147}Nd^{+3}$, $^{153}Sm^{+3}$, $^{166}Dy^{+3}$ and $^{177}Lu^{+3}$.